

**1. AMENDMENT**

**1.1 IN THE CLAIMS:**

1. (Previously Presented) A composition comprising:

(a) at least a first compound of the formula:



wherein R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl, in an amount of from about 0.1 μM to about 1000 μM; said amount effective to prolong the freshness or the aesthetic appearance of a plant, a flower, a fruit or a plant cutting;

(b) at least a first plant hormone selected from the group consisting of an auxin, a gibberellin and a cytokinin; and

(c) a horticulturally-acceptable vehicle.

2. (Original) The composition of claim 1, wherein said compound has the formula:



wherein R is optionally branched or straight chain, saturated C<sub>8</sub>-C<sub>20</sub> alkyl.

3. (Previously Presented) The composition of claim 2, wherein said compound is selected from the group consisting of NAE10:0 (*N*-caproylethanolamine), NAE 11:0, NAE12:0 (*N*-lauroylethanolamine), NAE13:0, NAE14:0 (*N*-myristoylethanolamine), NAE15:0, NAE16:0 (*N*-palmitoylethanolamine), NAE17:0, NAE18:0 (*N*-stearoylethanolamine), NAE19:0, and NAE20:0 (*N*-arachidoylethanolamine).

4. (Previously Presented) The composition of claim 3, wherein said compound is selected from the group consisting of NAE10:0 (*N*-caproylethanolamine), NAE12:0 (*N*-lauroylethanolamine), NAE14:0 (*N*-myristoylethanolamine), NAE16:0 (*N*-palmitoylethanolamine), NAE18:0 (*N*-stearoylethanolamine), and NAE 20:0 (*N*-arachidoylethanolamine).

5. (Previously Presented) The composition of claim 4, wherein said compound is *N*-lauroylethanolamine (NAE12:0) or *N*-myristoylethanolamine (NAE14:0).

6. (Original) The composition of claim 1, wherein said compound has the formula:



wherein R is optionally branched or straight chain, unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl.

7. (Previously Presented) The composition of claim 6, wherein said compound is selected from the group consisting of NAE10:1, NAE10:2, NAE10:3, NAE11:1, NAE11:2, NAE11:3, NAE12:1, NAE12:2, NAE12:3, NAE13:1, NAE13:2, NAE13:3, NAE14:1, NAE14:2, NAE14:3, NAE15:1, NAE15:2, NAE15:3, NAE16:1 (*N*-palmitoleylethanolamine), NAE16:2, NAE16:3, NAE17:1, NAE17:2, NAE17:3, NAE18:1 (*N*-vaccenoylethanolamine), NAE18:2 (*N*-linoleylethanolamine), NAE18:3 (*N*-linolenoylethanolamine), NAE19:1, NAE19:2, NAE19:3, NAE20:1, NAE20:2 (8,11-icosadienoylethanolamine), and NAE20:3 (5,8,11-icosatrienoylethanolamine).

8. (Previously Presented) The composition of claim 7, wherein said compound is NAE10:1, NAE10:2, NAE11:1, NAE11:2, NAE11:3, NAE12:1, NAE12:2, NAE12:3, NAE13:1, NAE13:2, NAE13:3, NAE14:1, NAE14:2, NAE14:3, NAE15:1, NAE15:2, NAE15:3, NAE16:1 (*N*-palmitoleylethanolamine), NAE16:2, or NAE16:3.

9. (Original) The composition of claim 1, wherein said vehicle comprises at least a first nutrient source for said plant, flower, fruit, or plant cutting.

10. (Original) The composition claim 9, wherein said nutrient comprises a lipid, a carbohydrate, or an amino acid.

11. (Original) The composition of claim 10, wherein said carbohydrate is selected from the group consisting of lactose, dextrose, fructose, sucrose, glucose sorbitol, mannitol, and inositol.

12. (Original) The composition of claim 1, wherein said vehicle comprises at least a first surfactant.

13. (Previously Presented) The composition claim 12, wherein said surfactant is selected from the group consisting of polyoxyethylene sorbitan monolaurate, monopalmitate monostearate, ethoxylated alkyl phenols and a hydrogenated oil.

14. (Original) The composition of claim 1, wherein said vehicle comprises at least a first buffer.

15. (Previously Presented) The composition of claim 14, wherein said buffer is selected from the group consisting of acetate, bicarbonate, citrate, succinate, malate, Tris-(hydroxymethyl)-aminomethane (TRIS); 2-(N-Morpholino)-ethanesulfonic acid (MES); N-[2-hydroxyethyl]piperazine-N'-[2-ethanesulfonic acid] (HEPES); 3-(N-Morpholino)-propanesulfonic acid (MOPS); N,N-Bis-(2-hydroxyethyl)-2-aminoethanesulfonic acid (BES); and Bis-(2-hydroxyethyl)-imino-tris-(hydroxymethyl)-methane (BIS-TRIS).

16. (Original) The composition of claim 1, wherein said vehicle comprises at least a first osmoregulant.

17. (Original) The composition of claim 16, wherein said osmoregulant is selected from the group consisting of a salt, a carbohydrate, a polyol, and a polyethylene glycol.

18.-19. (Canceled)

20. (Original) The composition of claim 1, further comprising at least a first antifungal, bacteriostatic, or bactericidal agent.

21. (Original) The composition of claim 20, wherein said bactericidal agent is selected from the group consisting of 8-hydroxyquinoline citrate, sodium dichloroisocyanurate, and 1,3-dichloro-5,5-dimethylhydantoin.

22. (Original) The composition of claim 1, further comprising an alcohol.

23. (Previously Presented) The composition of claim 1, wherein said compound is *N*-lauroylethanolamine (NAE12:0) or *N*-myristoylethanolamine (NAE14:0), and wherein said composition further comprises a lecithin.

24. (Original) The composition of claim 1, further comprising at least a second anti-senescent component.

25. (Previously Presented) The composition of claim 24, wherein said second anti-senescent component comprises a second distinct N-acylethanolamine compound selected from the group consisting of NAE10:0 (*N*-caproylethanolamine), NAE12:0 (*N*-lauroylethanolamine), NAE14:0 (*N*-myristoylethanolamine), NAE16:0 (*N*-palmitoylethanolamine), NAE18:0 (*N*-stearoylethanolamine), NAE20:0 (*N*-arachidoylethanolamine), NAE16:1 (*N*-palmitoleoylethanolamine), NAE18:1 (*N*-vaccenoylethanolamine), NAE18:2 (*N*-linoleoylethanolamine), NAE18:3 (*N*-linolenoylethanolamine), NAE20:1, NAE20:2 (8,11-icosadienoylethanolamine), and NAE20:3 (5,8,11-icosatrienoylethanolamine).

26. (Original) A kit comprising the composition of claim 1, and instructions for using said kit to delay the senescence of said plant, flower, fruit, or plant cutting.

27. (Previously Presented) A method of delaying the senescence of a plant, flower, fruit, or plant cutting, said method comprising providing to said flower, fruit, or plant cutting a solution comprising a senescence-delaying amount of:

- (a) a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl; or

- (b) the composition of claim 1, claim 64 or claim 71.

28. (Original) The method of claim 27, wherein said providing comprises applying said solution to said plant, flower, fruit, or plant cutting.

29. (Original) The method of claim 28, wherein said applying comprises spraying, coating, soaking, storing or transporting said plant, flower, fruit, or plant cutting with said solution for a length of time effective to delay said senescence.

30. (Original) The method of claim 27, wherein said solution is applied to said plant, flower, fruit, or plant cutting under ambient temperature conditions.

31. (Original) The method of claim 27, wherein said solution is applied to said plant, flower, fruit, or plant cutting under temperature conditions of from about 4°C to about 15°C.

32. (Original) The method of claim 27, wherein said providing comprises administering said solution to the plant while under cultivation.

33. (Original) The method of claim 32, wherein said providing comprises directly administering said solution to the roots, leaves, or flowers of said plant.

34. (Original) The method of claim 27, wherein delaying said senescence preserves or improves the appearance, fragrance, freshness, or aesthetic characteristics of said plant, flower, fruit, or plant cutting.

35. (Original) The method of claim 27, wherein delaying said senescence reduces the droop, wilt, bloom loss, leaf loss, needle drop, or rate of dehydration of said plant, flower or plant cutting.

36. (Original) The method of claim 27, wherein delaying said senescence prolongs or extends the appearance, taste, quality, or shelf life of said fruit.

37. (Original) The method of claim 27, wherein said plant cutting is severed from said plant during or after cultivation of said plant.

38. (Original) The method of claim 27, wherein said plant cutting comprises a bulb, a bloom, a bud, a flower, a petal, a stem, a branch, a rhizome, a bract, a fruit, a needle, or a leaf.

39. (Original) The method of claim 27, wherein said plant is selected from the group consisting of roses, orchids, tulips, daffodils, hyacinths, carnations, chrysanthemums, baby's breath, daisies, gladiolus, agapanthus, anthuria, Protea, Heliconia, Strilitzia, lilies, asters, irises, delphiniums, liatris, lisianthus, statis, stephanotis, freesia, dendrobiums, sunflowers, snap dragons, and ornamental foliage.

40. (Original) The method of claim 39, wherein said ornamental foliage comprises cut leaves, stalks, stems, branches, limbs, or cut trees.

41. (Original) The method of claim 40, wherein said ornamental foliage comprises coniferous foliage.

42. (Original) The method of claim 41, wherein said ornamental foliage comprises juniper, fir, pine, cedar, or spruce foliage.

43. (Original) The method of claim 40, wherein said ornamental foliage comprises Christmas or holiday trees, wreaths, or garlands.

44. (Original) The method of claim 27, wherein the final concentration of said compound in said solution is between about 0.2  $\mu\text{M}$  and about 800  $\mu\text{M}$ .

45. (Original) The method of claim 44, wherein the final concentration of said compound in said solution is between about 0.4  $\mu\text{M}$  and about 400  $\mu\text{M}$ .

46. (Original) The method of claim 45, wherein the final concentration of said compound in said solution is between about 2  $\mu\text{M}$  and about 200  $\mu\text{M}$ .

47. (Original) The method of claim 46, wherein the final concentration of said compound in said solution is between about 4  $\mu\text{M}$  and about 100  $\mu\text{M}$ .

48. (Original) The method of claim 27, wherein said solution is provided to said plant, flower, fruit, or plant cutting, for a time of from about 10 minutes to about 28 days.

49. (Original) The method of claim 48, wherein said solution is provided to said plant, flower, fruit, or plant cutting, for a time of from about 30 minutes to about 21 days.

50. (Original) The method of claim 49, wherein said solution is provided to said plant, flower, fruit, or plant cutting, for a time of from about 1 hour to about 14 days.

51.-58. (Canceled)

59. (Previously Presented) The composition of claim 5, wherein said compound is *N*-lauroylethanolamine (NAE12:0).

60. (Previously Presented) The composition claim 1, further comprising a lecithin.

61. (Previously Presented) The composition claim 60, wherein said lecithin is a soy lecithin.

62. (Previously Presented) The method of claim 27, comprising providing to said flower, fruit, or plant cutting a solution comprising a senescence-delaying amount of a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl.

63. (Previously Presented) The method of claim 27, comprising providing to said flower, fruit, or plant cutting a solution comprising a senescence-delaying amount of the composition of claim 1.

64. (Previously Presented) A composition comprising: (a) at least a first compound selected from the group consisting of NAE10:0 (*N*-caproylethanolamine), NAE12:0 (*N*-lauroylethanolamine), NAE14:0 (*N*-myristoylethanolamine), NAE18:0 (*N*-stearoylethanolamine), and NAE20:0 (*N*-arachidoylethanolamine) in an amount of from about 0.1  $\mu\text{M}$  to about 1000  $\mu\text{M}$ ; said amount effective to prolong the freshness or the aesthetic appearance of a plant, a flower, a fruit or a plant cutting; (b) a lecithin; and (c) a horticulturally-acceptable vehicle that comprises at least one surfactant.

65. (Previously Presented) The composition of claim 64, wherein said compound is selected from the group consisting of NAE10:0 (*N*-caproylethanolamine), NAE11:0, NAE12:0 (*N*-lauroylethanolamine), NAE13:0, NAE14:0 (*N*-myristoylethanolamine), NAE15:0, NAE17:0, NAE18:0 (*N*-stearoylethanolamine), NAE19:0, and NAE20:0 (*N*-arachidoylethanolamine).

66. (Previously Presented) The composition of claim 65, wherein said compound is selected from the group consisting of NAE10:0 (*N*-caproylethanolamine), NAE12:0 (*N*-lauroylethanolamine), NAE14:0 (*N*-myristoylethanolamine) and NAE18:0 (*N*-stearoylethanolamine).

67. (Previously Presented) The composition of claim 64, wherein said compound is *N*-lauroylethanolamine (NAE12:0), said lecithin is soy lecithin, and said surfactant is polyoxyethylenesorbitan monolaurate.

68. (Previously Presented) The composition of claim 64, further comprising an alcohol.

69. (Previously Presented) The composition of claim 68, wherein said alcohol is isopropanol.

70. (Previously Presented) A composition comprising:

- (a) at least a first compound selected from the group consisting of NAE10:0, NAE11:0, NAE12:0, NAE13:0, NAE14:0, NAE15:0, NAE17:0, NAE18:0, NAE19:0, NAE20:0, NAE10:1, NAE10:2, NAE10:3, NAE11:1, NAE11:2, NAE11:3, NAE12:1, NAE12:2, NAE12:3, NAE13:1, NAE13:2, NAE13:3, NAE14:1, NAE14:2, NAE14:3, NAE15:1, NAE15:2, NAE15:3, NAE16:1, NAE16:2, NAE16:3, NAE17:1, NAE17:2, NAE17:3, NAE18:1, NAE18:2, NAE18:3, NAE19:1, NAE19:2, NAE19:3, NAE20:1, NAE20:2, and NAE20:3, in an amount of from about 0.1  $\mu$ M to about 1000  $\mu$ M; said amount effective to prolong the freshness or the aesthetic appearance of a plant, a flower, a fruit or a plant cutting;
- (b) at least a first lecithin; and
- (c) a horticulturally-acceptable vehicle that comprises at least a first nutrient source for said plant, flower, fruit, or plant cutting.

71. (Previously Presented) A composition comprising:

- (a) at least a first compound of the formula:



wherein R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl, in an amount of from about 0.1  $\mu$ M to about 1000  $\mu$ M; said amount effective to prolong the freshness or the aesthetic appearance of a plant, a flower, a fruit or a plant cutting;

- (b) at least a first soy lecithin; and
- (c) a horticulturally-acceptable vehicle comprising at least a first alcohol.

72. (Previously Presented) A composition comprising: about 2 g *N*-lauroylethanolamine, about 1 g soy lecithin, and about 0.2 ml polyoxyethylenesorbitan monolaurate per 20 ml of isopropanol.

73. (Previously Presented) A method of prolonging the appearance of a plant, flower, fruit, or plant cutting, said method comprising providing to said flower, fruit, or plant cutting a solution comprising an amount of:

- (a) a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl; or

- (b) the composition of claim 1 or claim 72,

effective to prolong the appearance of said plant, flower, fruit, or plant cutting.

74. (Previously Presented) A method of increasing the shelf life of a plant, flower, fruit, or plant cutting, said method comprising providing to said flower, fruit, or plant cutting a solution comprising an amount of:

- (a) a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl; or

- (b) the composition of claim 1,

effective to increase the shelf life of said plant, flower, fruit, or plant cutting.

75. (Previously Presented) The method of claim 74, comprising providing to said flower, fruit, or plant cutting a solution comprising an amount of a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl, effective to increase the shelf life of said plant, flower, fruit, or plant cutting.

76. (Previously Presented) The method of claim 75, wherein said compound is *N*-lauroylethanolamine (NAE12:0) or *N*-myristoylethanolamine (NAE14:0).

77. (Previously Presented) A method of extending the freshness or aesthetic appearance of cut flowers, ornamental cut trees, or a plant cutting, said method comprising: providing to said cut flowers, said ornamental cut trees, or said plant cutting, a solution comprising a biologically-effective amount of:

- (a) a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl; or

- (b) the composition of claim 1,

for a time effective to extend the freshness of aesthetic appearance of said cut flowers, said ornamental cut trees, or said plant cutting.

78. (Previously Presented) The method of claim 77, comprising providing to said cut flowers, said ornamental cut trees, or said plant cutting, a solution comprising a biologically-effective amount of a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl, for a time effective to extend the freshness of aesthetic appearance of said cut flowers, said ornamental cut trees, or said plant cutting.

79. (Previously Presented) The method of claim 78, wherein said compound is *N*-lauroylethanolamine (NAE12:0) or *N*-myristoylethanolamine (NAE14:0).

80. (Previously Presented) A method of extending the vase life of a cut flower or plant cutting, said method comprising: providing to said cut flower or plant cutting a solution comprising an effective amount of:

- (a) a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl; or

- (b) the composition of claim 1,

for a time necessary to extend the vase life of said cut flower or said plant cutting.

81. (Previously Presented) The method of claim 80, comprising: providing to said cut flower or plant cutting a solution comprising an effective amount of a compound of the formula:



where R is optionally branched or straight chain, saturated or unsaturated C<sub>8</sub>-C<sub>20</sub> alkyl, for a time necessary to extend the vase life of said cut flower or said plant cutting.

82. (Previously Presented) The method of claim 81, wherein said compound is N-lauroylethanolamine (NAE12:0) or N-myristoylethanolamine (NAE14:0).

83. (Previously Presented) A composition comprising:

(a) at least a first compound selected from the group consisting of NAE10:0, NAE11:0, NAE12:0, NAE13:0, NAE14:0, NAE15:0, NAE17:0, NAE18:0, NAE19:0, NAE20:0, NAE10:1, NAE10:2, NAE10:3, NAE11:1, NAE11:2, NAE11:3, NAE12:1, NAE12:2, NAE12:3, NAE13:1, NAE13:2, NAE13:3, NAE14:1, NAE14:2, NAE14:3, NAE15:1, NAE15:2, NAE15:3, NAE16:1, NAE16:2, NAE16:3, NAE17:1, NAE17:2, NAE17:3, NAE18:1, NAE18:2, NAE18:3, NAE19:1, NAE19:2, NAE19:3, NAE20:1, NAE20:2, and NAE20:3, in an amount of from about 1% to about 20%; and

(b) a horticulturally-acceptable vehicle that comprises at least a first surfactant, and at least a first antifungal, bacteriostatic, or bactericidal agent.

84. (Previously Presented) A composition comprising:

(a) at least a first and a second distinct compound, each selected from the group consisting of NAE10:0, NAE11:0, NAE12:0, NAE13:0, NAE14:0, NAE15:0, NAE17:0, NAE18:0, NAE19:0, NAE20:0, NAE10:1, NAE10:2, NAE10:3,

NAE11:1, NAE11:2, NAE11:3, NAE12:1, NAE12:2, NAE12:3, NAE13:1, NAE13:2, NAE13:3, NAE14:1, NAE14:2, NAE14:3, NAE15:1, NAE15:2, NAE15:3, NAE16:1, NAE16:2, NAE16:3, NAE17:1, NAE17:2, NAE17:3, NAE18:1, NAE18:2, NAE18:3, NAE19:1, NAE19:2, NAE19:3, NAE20:1, NAE20:2, and NAE20:3, and each in an amount of from about 1% to about 20%; and

- (b) a horticulturally-acceptable vehicle that comprises at least a first lecithin, and at least a first antifungal, bacteriostatic, or bactericidal agent.

85. (New) A composition comprising:

- (a) at least a first compound selected from the group consisting of NAE10:0, NAE 11:0, NAE12:0, NAE13:0, NAE14:0, NAE15:0, NAE17:0, NAE18:0, NAE19:0, and NAE20:0, in an amount of from about 0.2 to about 800  $\mu$ M; and

- (b) a horticulturally-acceptable vehicle that comprises at least a first surfactant, and at least a first antifungal, bacteriostatic, or bactericidal agent.

86. (New) A composition comprising:

- (b) at least a first compound selected from the group consisting of NAE10:0, NAE 11:0, NAE12:0, NAE13:0, NAE14:0, NAE15:0,

NAE17:0, NAE18:0, NAE19:0, and NAE20:0, in an amount of from about 0.2 to about 800  $\mu\text{M}$ ; and

(b) a horticulturally-acceptable vehicle that comprises at least a first surfactant, and at least a first alcohol.